

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT				1. Contract ID Code Cost-Plus-Fixed-Fee		Page 1 Of 5	
2. Amendment/Modification No. P00003		3. Effective Date 2003DEC19		4. Requisition/Purchase Req No. SEE SCHEDULE		5. Project No. (If applicable)	
6. Issued By TACOM WARREN BLDG 231 AMSTA-AQ-ABGD PAM KOSTOWNY (586)574-8899 WARREN, MICHIGAN 48397-5000 HTTP://CONTRACTING.TACOM.ARMY.MIL EMAIL: KOSTOWNP@TACOM.ARMY.MIL		Code W56HZV		7. Administered By (If other than Item 6) DCMA SOUTHERN VIRGINIA 190 BERNARD ROAD BLDG 117 FORT MONROE VA 23651 SCD C PAS NONE ADP PT HQ0338		Code S5111A	
8. Name And Address Of Contractor (No., Street, City, County, State and Zip Code) MICRON OPTICAL SYSTEMS 5112 DOMINION DR SUFFOLK, VA. 23435-1442 TYPE BUSINESS: Other Small Business Performing in U.S.				<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>		9A. Amendment Of Solicitation No. 9B. Dated (See Item 11) 10A. Modification Of Contract/Order No. DAAE07-01-C-L008 10B. Dated (See Item 13) 2001JAN11	
Code INJN0		Facility Code					
11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS							
<input type="checkbox"/> The above numbered solicitation is amended as set forth in item 14. The hour and date specified for receipt of Offers <input type="checkbox"/> is extended, <input type="checkbox"/> is not extended. Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods: (a) By completing items 8 and 15, and returning _____ copies of the amendments: (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.							
12. Accounting And Appropriation Data (If required) Payment will be made by Electronic Funds Transfer NO CHANGE TO OBLIGATION DATA							
13. THIS ITEM ONLY APPLIES TO MODIFICATIONS OF CONTRACTS/ORDERS It Modifies The Contract/Order No. As Described In Item 14.							
KIND MOD CODE: G							
<input type="checkbox"/> A. This Change Order is Issued Pursuant To: The Changes Set Forth In Item 14 Are Made In The Contract/Order No. In Item 10A.							
<input type="checkbox"/> B. The Above Numbered Contract/Order Is Modified To Reflect The Administrative Changes (such as changes in paying office, appropriation data, etc.) Set Forth In Item 14, Pursuant To The Authority of FAR 43.103(b).							
<input checked="" type="checkbox"/> C. This Supplemental Agreement Is Entered Into Pursuant To Authority Of: Mutual Agreement							
<input type="checkbox"/> D. Other (Specify type of modification and authority)							
E. IMPORTANT: Contractor <input type="checkbox"/> is not, <input checked="" type="checkbox"/> is required to sign this document and return _____ copies to the Issuing Office.							
14. Description Of Amendment/Modification (Organized by UCF section headings, including solicitation/contract subject matter where feasible.) SEE SECOND PAGE FOR DESCRIPTION							
15A. Name And Title Of Signer (Type or print)				16A. Name And Title Of Contracting Officer (Type or print) JOHN M. HOPFNER HOPFNERJ@TACOM.ARMY.MIL (586)574-7070			
15B. Contractor/Offeror (Signature of person authorized to sign)		15C. Date Signed		16B. United States Of America By _____ /SIGNED/ (Signature of Contracting Officer)		16C. Date Signed 2003DEC19	
NSN 7540-01-152-8070 PREVIOUS EDITIONS UNUSABLE				30-105-02		STANDARD FORM 30 (REV. 10-83) Prescribed by GSA FAR (48 CFR) 53.243	

Except as provided herein, all terms and conditions of the document referenced in item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

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SECTION A - SUPPLEMENTAL INFORMATION

CONTRACT FOR:

PHASE II Small Business Innovation Research Program (SBIR), Topic No. A99-095, Title: "Dual Raman/Absorbance Fuel Analyzer"

1. The purpose of this bilateral Modification P00003 is to accomplish the following:
 - a. Extend the performance period of performance; and
 - b. Revise the Statement of Work (SOW).
2. As a result of 1.a above, the performance period of the subject contract is extended from 11 January 2004 through 31 October 2004.
3. As a result of 1.b above, revise Statement of Work, the following is accomplished:
 - a. The contract deliverables are revised as described in the attached paragraphs C.3 through C.3.4 as follows: (i) Instead of the contractor delivering two fully functional portable dual absorbance/Raman fuel analyzers integrated into portable carrying cases, the contractor shall deliver two fully functional NIR fuel analyzers and one fully functional Raman fuel analyzer, fully assembled, tested, integrated and packaged into portable carrying cases. (ii) Instead of the contractor delivering two portable notebook computers with all necessary software installed, the contractor shall deliver three portable notebook computers with all necessary software installed.
 - b. The meetings described in the attached paragraphs C.4 through C.4.2 are hereby incorporated; and
 - c. The deliveries and performance are revised accordingly, as described in the attached paragraphs F.1.1.1 and F.1.1.2, and F.2.1, F.2.2 and F.2.4.
4. As a result of the above, the total contract value remains unchanged.
5. Except as provided herein, all other terms and conditions of the contract as previously modified, remain unchanged.

*** END OF NARRATIVE A 003 ***

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SECTION C - DESCRIPTION/SPECIFICATIONS/WORK STATEMENT

SECTION C

C.1 SCOPE. This Statement of Work (SOW) defines the Phase II efforts required for the optimized design of a functional portable fuel analyzer and its associated software that will be capable of determining the type and quality of turbine and diesel fuels. Efforts under this SOW build upon the results of Phase I contract DAAE07-00-C-L012.

C.2 REQUIREMENTS.

C.2.1 Analyzer Design Optimization

C.2.1.1 The contractor shall optimize the fuel analyzer resolution in relation to signal-to-noise. The contractor shall evaluate tradeoffs between increased resolution performance and signal-to-noise performance.

C.2.1.2 The contractor shall complete the electronics interface module by allowing for use of 124, 256, or 512 element arrays with the fuel analyzer. The electronics shall be laid in such a way to allow for ease of mass fabrication, and shall be optimized for reduced noise, compactness and reliability.

C.2.1.3 The contractor shall integrate the InGaAs array, associated electronics, thermal management package and shutter into a single package to improve modularity and improve maintainability characteristics of the fuel analyzer.

C.2.1.4 The contractor shall complete design of the power management module to be used in association with the fuel analyzer. It shall allow the fuel analyzer to be powered from 24VDC and 120VAC/60HZ external electrical power sources.

C.2.1.5 The contractor shall design, integrate and package the components/modules of the fuel analyzer. The design objective shall be to fit all components excluding the computer into a rugged hand-held carrying case. Modular design shall allow for users to specify any of three fuel analyzer designs: 1) Raman/Absorbance enabled, 2) Raman enabled, or 3) Absorbance enabled.

C.2.1.6 The contractor shall complete the design for the commercial Raman probe and manufacture it. The contractor shall examine the performance, design and fabrication of a probe with a longer path length than that designed and tested in Phase I, that will provide the optimal solution to detect undissolved water to 10 ppm with accuracy and precision comparable to ASTM method D3240.

C.2.2 Software for Portable Fuel Analyzer

C.2.2.1 The contractor shall assemble a database of calibrated turbine and diesel fuel. The near-IR spectra of fuels in the database shall be determined using the optimized Fuel analyzer prototype.

C.2.2.2 The contractor shall build a comprehensive model for fuel classification that is capable of classifying an unknown fuel sample according to one of the following categories: 1) fuel type identified and specification acceptable (on spec), 2) fuel type identified and specification unacceptable (out of spec), 3) fuel type identified and within usability limits (off spec), 4) unidentified fuel. The model shall be able to determine the type of fuel (turbine, diesel). The model shall be able to determine the fuel grade by specification (Jet A, JP-8, or JP-5; diesel: Grade 1-D, Grade 2-D or Grade 4-D).

C.2.2.3 The contractor shall develop robust predictive algorithms that will be used with the fuel analyzer to determine fuel properties of classified fuels. Properties to be determined include but are not limited to the following: distillation, flash point, conductivity, pour point, cloud point, cetane, density, viscosity and fuel system icing inhibitor concentration for the fuel type.

C.2.2.4 The contractor shall design and apply a robust calibration transfer method to allow for rapid transfer from instrument to instrument of the algorithms needed for reliable performance and to allow continued improvement. The contractor shall establish a set of standards by which the algorithm can be automatically adjusted or by which the spectral output can be automatically adjusted.

C.2.2.5 The contractor shall complete and finalize the software package, which will integrate data collection with classification, prediction, calibration, and calibration transfer algorithms. The software will contain a Microsoft Windows graphical user interface and allow for remote operation using a TCP/IP network interface card with a Java program accessible from any web-enabled device supporting standard browser software.

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C.3 DELIVERABLES.

- C.3.1 Two fully functional NIR fuel analyzers and one fully functional Raman fuel analyzer, fully assembled, tested, integrated and packaged into portable carrying cases shall be delivered to TACOM. One NIR fuel analyzer shall be delivered no later than 12 January 2004. The second NIR analyzer and the Raman fuel analyzer shall be delivered at the end of the contract.
- C.3.2 Three portable notebook computers with all necessary software installed to include the fuel calibration database, the classification models and predictive algorithms to fully operate the fuel analyzers and analyze the fuel quality shall be delivered, one with each of the portable fuel analyzers specified in C.3.1, above.
- C.3.3 License agreements to legally use all commercial software shall be delivered with the devices for use of software. The contractor shall provide the Government with full rights to use and modify any software data developed or altered by the contractor under contracts DAAE07-00-C-L012 or DAAE07-01-C-L008. All commercial hardware and software supporting documentation shall be delivered with the computers.
- C.3.4 Technical report summarizing Phase II efforts, findings and recommendations in accordance with CDRL A001. The contractor shall include all supporting documentation and instrumentation for all hardware and software it developed or modified. Further, in a separate section of the final report, the contractor shall provide a training/instruction manual for operating and maintaining the two NIR fuel analyzers and the Raman fuel analyzer.
- C.3.5 Bi-monthly progress reports in accordance with CDRL A002.

C.4 Meetings:

- C.4.1 Demonstration and Training: The contractor shall provide at TACOM, a one-day demonstration and hands-on training of the NIR fuel analyzer delivered in January 2004. The contractor shall contact the COR at least one week in advance of the anticipated delivery date to coordinate the training.
- C.4.2 In Process Reviews: The contractor shall hold three (3) In-Process Reviews from the effective date of modification P00003 of this contract (approximately March, June and September 2004.) The contractor shall schedule the reviews with the COR. The first and third reviews will be held either at TACOM, and the second review will be at the contractor's facility. The meetings will be jointly chaired by the contractor and the TACOM COR, and the agenda will be coordinated in advance of each IPR between the contractor and the COR.

*** END OF NARRATIVE C 002 ***

C.4 Meetings:

- C.4.1 Demonstration and Training: The contractor shall provide at TACOM, a one-day demonstration of and hands-on training for the NIR fuel analyzer delivered in January 2004. The contractor shall contact the COR at least one week in advance of the anticipated delivery date to coordinate the training.
- C.4.2 In Process Reviews: The contractor shall hold three (3) In-Process Reviews from the effective date of modification P00003 of this contract (approximately March, June and September 2004.) The contractor shall schedule the reviews with the COR. The first and third reviews will be held at TACOM, and the second review will be at the contractor's facility. The meetings will be jointly chaired by the contractor and the TACOM COR, and the agenda will be coordinated in advance of each IPR between the contractor and the COR.

*** END OF NARRATIVE C 003 ***

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SECTION F - DELIVERIES OR PERFORMANCE

F.1 DELIVERABLES

F.1.1 Hardware:

F.1.1.1 Two fully functional NIR fuel analyzers and one fully functional Raman fuel analyzer, fully integrated and packaged into portable carrying cases shall be delivered to TACOM at the following address:

Commander
US Army Tank-automotive and Armaments Command
ATTN: AMSRD-TAR-D / MS 110
Attn: Steve Moyer
Warren, Michigan 48397-5000

F.1.1.2 Three portable notebook computers with all necessary software installed, including the fuel calibration database, the classification models and predictive algorithms, to fully operate the fuel analyzers and analyze the fuel quality shall be delivered with the portable dual absorbance/Raman fuel analyzers.

*** END OF NARRATIVE F 001 ***

F.1.2 SOFTWARE:

F.1.2.1 License agreements to legally use all commercial software delivered with the devices for use of software. The contractor shall provide the Government with full rights to use and modify any software data developed or altered by the contractor under contracts DAAE07-00-C-L012 or DAAE07-01-C-L008. All commercial hardware and software supporting documentation shall be delivered with the computers.

F.1.3 DATA:

The contractor shall submit all reports electronically in accordance with the Contract Data Requirements List (DD Form 1423), to the following e-mail addresses:

moyers@tacom.army.mil
and
kostownp@tacom.army.mil

*** END OF NARRATIVE F 002 ***

F.2 DURATION OF PERFORMANCE:

F.2.1 All work required under this contract, including submission of the final technical report, shall be completed by 31 October 2004. One NIR fuel analyzer shall be delivered no later than 12 January 2004. The second NIR analyzer and the Raman fuel analyzer shall be delivered no later than 31 October 2004. The three portable notebook computers with all necessary software installed shall be delivered no later than 31 October 2004.

F.2.2 The contractor shall deliver a draft technical report by 30 August 2004.

F.2.3.1 The contractor shall deliver the final technical report thirty (30) days after receipt of Government comments.

F.2.4 The entire contractual efforts, including the delivery of the final technical report, shall be completed by 31 October 2004.

*** END OF NARRATIVE F 003 ***